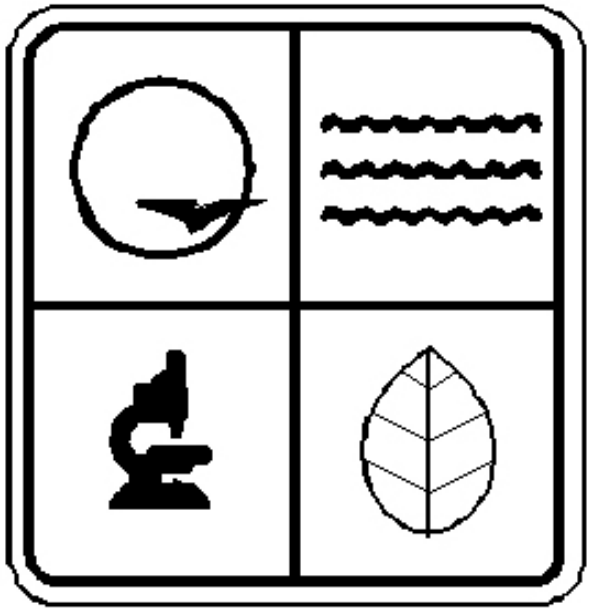
Jasper County Baseline

EDM Calibration Baseline
Jasper County, Missouri



Established by

Land Survey Program
Missouri Department of Natural Resources
And
Missouri Department of Highway & Transportation

1998

JASPER COUNTY EDM CALIBRATION BASELINE

The EDM baseline is located about 2.0 miles south of Jasper, MO and 9.0 miles north of Carthage, MO. To reach the baseline from the junction of U.S. Highway 71 and Missouri Routes M & N, go west on Route M for 0.1 mile to the junction with the west outer road. Turn left (south) on the outer road and go 2.25 miles to station 0 M on the left as described just past the MFA AGRI-SERVICES entrance.

The baseline consists of four monuments. The monuments are Missouri DNR aluminum disks set in a 12” x 30" poured in place concrete monument set flush with the ground surface.

Station 0 M is 2.5 feet east of the edge of pavement and 87.0 feet east of a Carsonite witness post set at the west R/W.

Station 150 M is 5.8 feet east of the edge of pavement and 88.0 feet east of a Carsonite witness post at the west R/W.

Station 400 M is 5.6 feet east of the edge of pavement and 88.5 feet east of a Carsonite witness post at the west R/W.

Station 1380 M is 5.0 feet east of the edge of pavement and 94.0 feet east of a Carsonite witness post at the west R/W.

The baseline station elevations are as follows:
0 meter - 282.98m
150 meter - 282.68m
400 meter - 282.07m
1380 meter - 294.50m
Elevations are based on NAVD 1988

Electronic Distance Measuring (EDM) Calibration Baselines in Missouri

The Missouri Department of Natural Resources has established 12 Electronic Distance Measuring (EDM) calibration baselines in Missouri. Despite the fact that modern equipment is highly sophisticated and provides a direct readout of the distance to the nearest hundredth of a foot or millimeter at push of a button, it can also give an erroneous reading. The EDM baseline will allow the operator to verify that the instrument is in calibration and the instrument is being operated properly.

Each EDM baseline consist of 4 monumented stations. The monuments are spaced nominally at 0 meters, 150 meters, 400 meters and 1100 to 1375 meters. Each station will be occupied with the EDM equipment and a measurement made to the 3 other stations. This will give a total of 12 measurements. The results will determine the scale factor and a system constant for the EDM instrument.

The EDM operator should use the same procedures as in every day fieldwork. This will not only confirm that the equipment is in good working order, but will ensure the complete method of collecting data. The measuring system includes not only the instrument but the tripods, tribrachs, prisms, thermometers and barometers/altimeters as well.

WHEN TO CALIBRATE YOUR INSTRUMENT?

- Upon receipt of a new instrument
- Immediately after each servicing
- Anytime the operator feels the instrument is not working properly
- Before and after DNR or other government agency contracts

BEFORE RUNNING THE BASELINE PERFORM THE FOLLOWING

- Check and adjust optical plummets, bulls-eye bubbles and plumbing poles.
- Check thermometers and barometers/altimeters
- Make sure all tripods are rigid and stable
- Clean prisms
- Fully charge all batteries
- Have an EDM Calibration Report form for the baseline you are running.

When filling out the EDM Calibration Report form, fill in all lines that apply and add addition information if needed.

IMPORTANT NOTE

Before each measurement, enter the temperature and station pressure or absolute pressure into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM. One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1000 feet, dividing 1000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

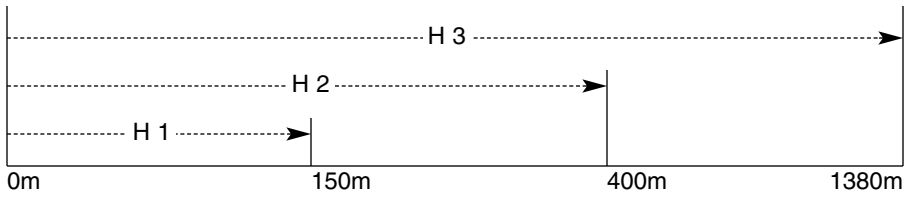
EDM CALIBRATION REPORT – JASPER COUNTY EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

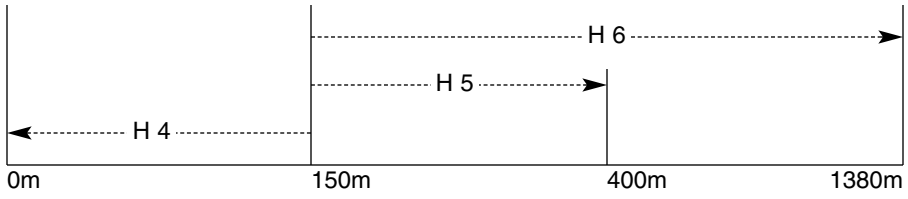
NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 0m



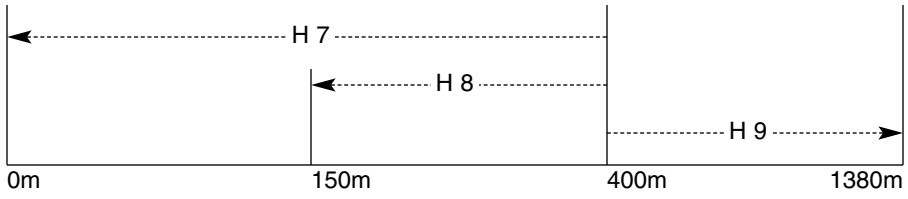
H 1 =	H 2 =	H 3 =	TEMP
H 1 = (150.1186m)	H 2 = (400.0511m)	H 3 = (1388.1804m)	*PRESS

E.D.M. AT 150m



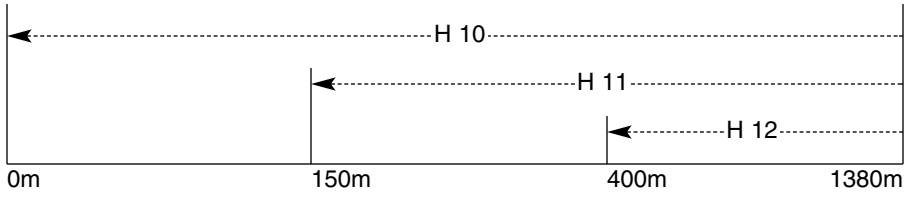
H 4 =	H 5 =	H 6 =	TEMP
H 4 = (150.1186m)	H 5 = (249.9324m)	H 6 = (1238.0617m)	*PRESS

E.D.M. AT 400m



H 7 =	H 8 =	H 9 =	TEMP
H 7 = (400.0511m)	H 8 = (249.9324m)	H 9 = (988.1293m)	*PRESS

E.D.M. AT 1380m



H 10 =	H 11 =	H 12 =	TEMP
H 10 = (1388.1804)	H 11 = (1238.0617m)	H 12 = (988.1293m)	*PRESS

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

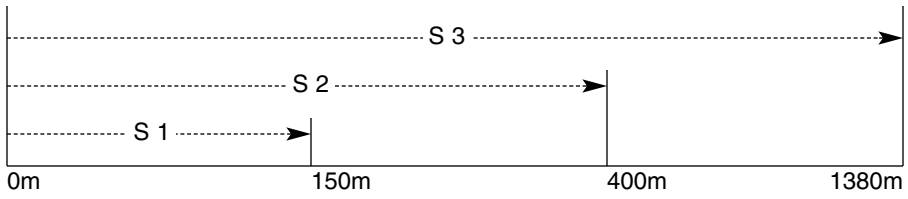
EDM CALIBRATION REPORT – JASPER COUNTY EDM BASELINE (SLOPE)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

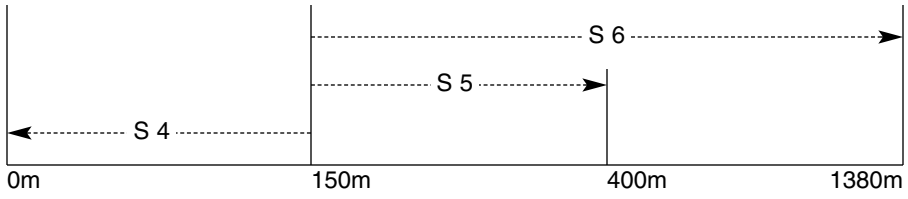
NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.

E.D.M. AT 0m



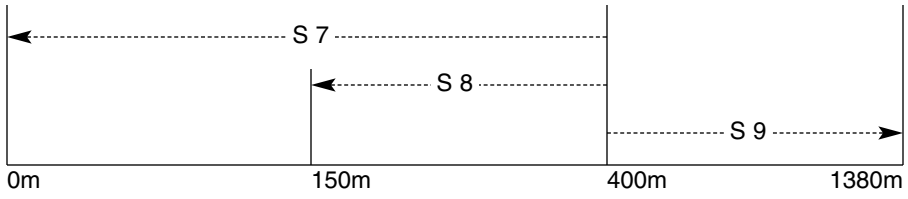
HI =	S 1 =	S 2 =	S 3 =	TEMP
	H 0 =	H 0 =	H 0 =	*PRESS

E.D.M. AT 150m



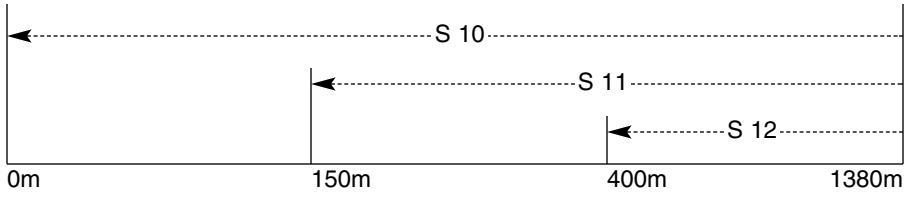
S 4 =	HI =	S 5 =	S 6 =	TEMP
H 0 =		H 0 =	H 0 =	*PRESS

E.D.M. AT 400m



S 7 =	S 8 =	HI =	S 9 =	TEMP
H 0 =	H 0 =		H 0 =	*PRESS

E.D.M. AT 1380m

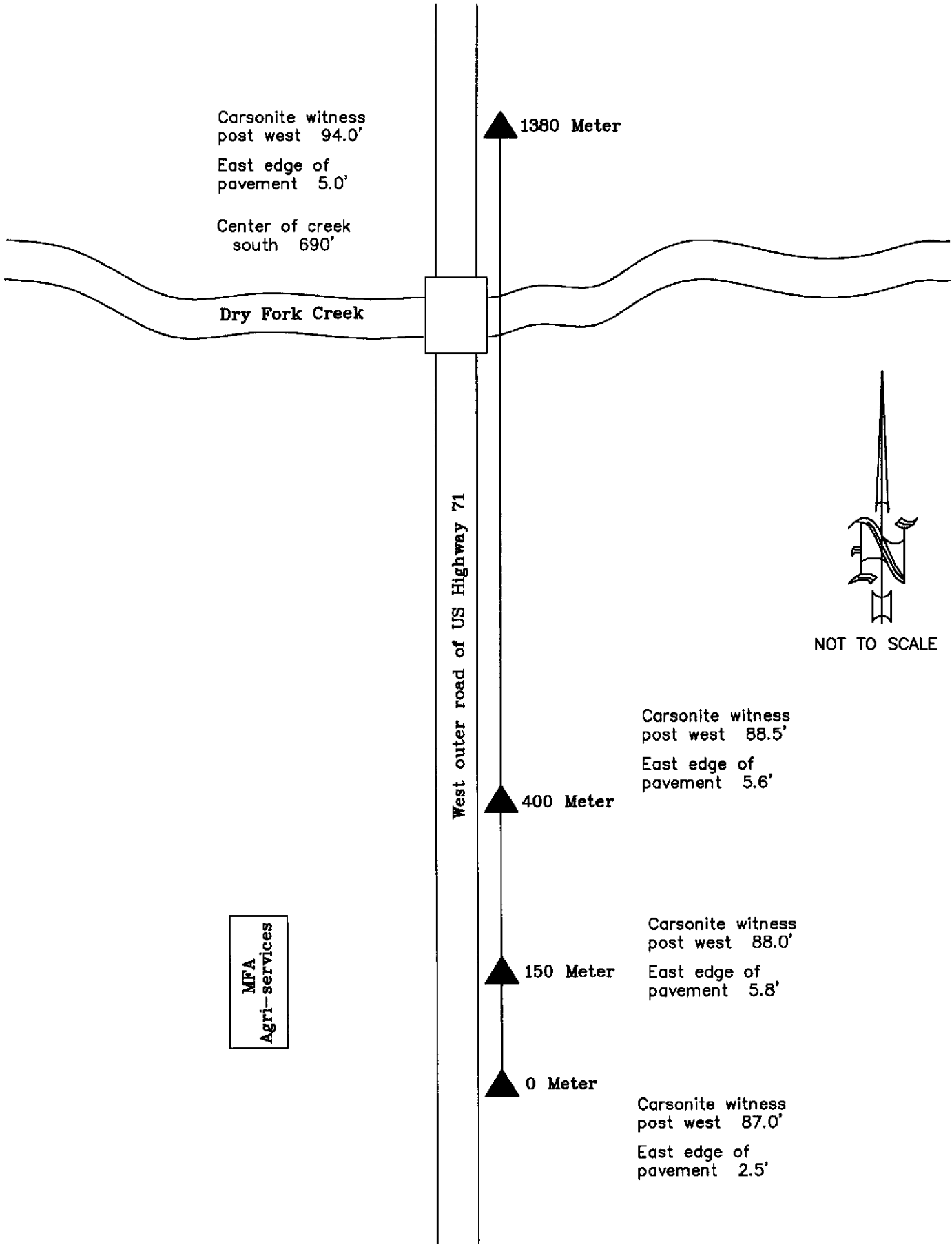


S 10 =	S 11 =	S 12 =	HI =	TEMP
H 0 =	H 0 =	H 0 =		*PRESS

Heights or delta elevations between monuments. Elevations (Referenced to NAVD 1988)
0m = 282.98m 150m = 282.67m 400m = 282.07m 1380m = 294.50m

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

Jasper County Baseline



DATE OF SKETCH 2003